

17W

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ning Hu et al.

Title: METHOD OF DRUG LOADING IN LIPOSOMES BY GRADIENT

Docket No.: 1992.006US1

Filed: November 26, 2003

Examiner: Unknown

Serial No.: 10/723,610

Due Date: N/A

Group Art Unit: 1615

MS Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

☒ A return postcard.

☒ An Information Disclosure Statement (2 pgs.), Form 1449 (3 pgs.), and copies of 31 cited documents.

If not provided for in a separate paper filed herewith, Please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

Customer Number 21186

By: 

Atty: Gary J. Speier

Reg. No. 45,458

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 10th day of November, 2004.

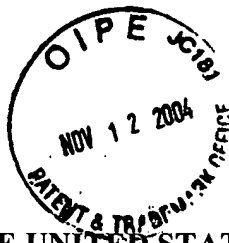
JAMES KANYOSIK
Name

James Kanyosik
Signature

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

(GENERAL)

S/N 10/723,610



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Ning Hu et al.	Examiner:	Unknown
Serial No.:	10/723,610	Group Art Unit:	1615
Filed:	November 26, 2003	Docket:	1992.006US1
Title:	METHOD OF DRUG LOADING IN LIPOSOMES BY GRADIENT		

INFORMATION DISCLOSURE STATEMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

INFORMATION DISCLOSURE STATEMENT

Serial No :10/723,610

Filing Date: November 26, 2003

Title: METHOD OF DRUG LOADING IN LIPOSOMES BY GRADIENT

Page 2

Dkt: 1992.006US1

The present application is a U.S. national patent application filed after June 30, 2003. Thus, Applicant believes that the U.S. Patent & Trademark Office has waived the requirement under 37 C.F.R. 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication. The waiver is provided in a pre-OG notice from the U.S. Patent & Trademark Office entitled "Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications filed after June 30, 2003" and dated July 11, 2003. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

NING HU ET AL.

By their Representatives,

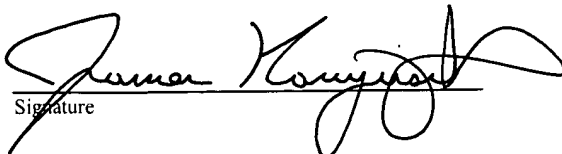
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 359-3261

Date 11/09/04

By 
Gary J. Speier
Reg. No. 45,458

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 10th day of November, 2004.

JAMES KANYUSIK
Name


Signature

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

Application Number 10/723,610

Filing Date November 26, 2003

First Named Inventor Hu, Ning

Group Art Unit 1615

Examiner Name Unknown

Sheet 1 of 3

Attorney Docket No: 1992.006US1

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-3,993,754	11/23/1976	Rahman, Yueh-Erh , et al.	514	12	10/09/1974
	US-4,145,410	03/20/1979	Sears, Barry D.	424	19	06/17/1997
	US-4,224,179	09/23/1980	Schneider, Michel	252	316	09/23/1980
	US-4,235,871	11/25/1980	Papahadjopoulos, Demetrios P., et al.	424	19	02/24/1978
	US-4,522,803	06/11/1985	Lenk, Robert P., et al.	424	1.21	03/24/1983
	US-4,588,578	05/13/1986	Fountain, Michael W., et al.	424	1.1	08/08/1983
	US-4,753,788	06/28/1988	Gamble, Ronald C.	424	1.1	01/31/1985
	US-4,880,635	11/14/1989	Janoff, A. S., et al.	424	450	07/26/1985
	US-4,935,171	06/19/1990	Bracken, K. R.	264	4.6	01/27/1989
	US-4,946,683	08/07/1990	Forssen, Eric A.	424	422	08/04/1989
	US-5,008,050	04/16/1991	Cullis, Pieter R.	264	4.3	02/13/1989
	US-5,077,056	12/31/1991	Bally, M. B., et al.	424	450	12/12/1988
	US-5,204,112	04/20/1993	Hope, M. J., et al.	124	450	06/12/1987
	US-5,252,263	10/12/1993	Hope, M. J., et al.			03/17/1992
	US-5,316,771	05/31/1994	Barenholz, Yechezkel , et al.	424	450	12/18/1992
	US-5,380,531	01/10/1995	Chakrabarti, Ajoy , et al.	424	450	06/02/1992
	US-5,409,704	04/25/1995	Bally, M. B., et al.	424	450	05/06/1993
	US-5,578,320	11/26/1996	Janoff, A. S., et al.	424	450	02/24/1993
	US-5,616,341	04/01/1997	Mayer, L. D., et al.	424	450	08/26/1993
	US-5,736,155	04/07/1998	Bally, M. B., et al.	424	450	06/05/1995
	US-5,744,158	04/28/1998	Mayer, L. D., et al.	424	450	05/25/1995
	US-5,795,589	08/18/1998	Mayer, Lawrence D., et al.	424	450	02/05/1997
	US-5,814,335	09/29/1998	Webb, Murray S., et al.	424	450	09/17/1997
	US-5,837,279	11/17/1998	Janoff, A. S., et al.	424	450	05/25/1995
	US-5,939,096	08/17/1999	Clerc, S. , et al.	424	450	05/29/1997
	US-5,945,122	08/31/1999	Abra, R. M., et al.	424	450	08/22/1997
	US-6,056,973	05/02/2000	Allen, T. M., et al.	424	450	08/21/1998
	US-6,083,530	07/04/2000	Mayer, Lawrence D., et al.	424	450	05/26/1998
	US-6,126,966	10/03/2000	Abra, R. M., et al.	424	450	06/29/1999
	US-6,316,024	11/13/2001	Allen, T. M., et al.	424	450	03/02/2000

EXAMINER**DATE CONSIDERED**

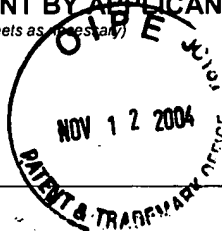
Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)



Complete if Known

Application Number	10/723,610
Filing Date	November 26, 2003
First Named Inventor	Hu, Ning
Group Art Unit	1615
Examiner Name	Unknown

Sheet 2 of 3

Attorney Docket No: 1992.006US1

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²
	EP-0546951A1	06/16/1993	Ostro, Marc J.	A61K	37/02	
	EP-0719546A1	07/03/1996	Bally, Marcel B., et al.	A61K	9/127	
	WO-86/00238A1	01/16/1986	Cullis, Pieter R., et al.	B01D	13/00	
	WO-86/01102A1	02/27/1986	Bally, Marcel B., et al.	A61K	9/60	
	WO-99/13816A2	03/25/1999	Moynihan, Karen L., et al.	A61K		
	WO-03/041682A2	05/22/2003	Webb, Murray, et al	A61K	9/00	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		"PCT International Search Report", from counterpart International Application No. PCT/US 03/37790, dated June 25, 2004, 10 pages	
		ADLAKHA-HUTCHEON, G.A., et al., "Controlled Destabilization of a Liposomal Drug Delivery System Enhances Mitoxantrone Antitumor Activity", <u>Nature Biotechnology</u> , 17, (1999), 775-779	
		BANGHAM, A D., et al., "Diffusion of Univalent Ions Across the Lamellae of Swollen Phospholipids", <u>J Mol Biol</u> , 13(1), (1965), 238-52	
		BERMAN, E., et al., "Phase I and Clinical Pharmacology Studies of Intravenous and Oral Administration of 4-Demethoxydaunorubicin in Patients with Advanced Cancer", <u>Cancer Research</u> , 43(12), (1983), 6096-6101	
		CRAMER, J. A., et al., "NMR Studies of pH-Induced Transport of Carboxylic Acids Across Phospholipid Vesicle Membranes", <u>Biochemical and Biophysical Research Communications</u> , 75(2), (1977), 295-301	
		DEAMER, D. W., et al., "The Response of Fluorescent Amines to pH Gradients Across Liposome Membranes", <u>Biochimica et Biophysica ACTA</u> , 274, (1972), 323-335	
		DEAMER, D. W., et al., "Chapter 1 - Liposome Preparation: Methods and Mechanisms", In: <u>Liposomes</u> , edited by Ostro, M. J., published by Marcel Dekker, Inc., (1983), 27-51	
		FORSSSEN, E A., et al., "Improved Therapeutic Benefits of Doxorubicin by Entrapment in Anionic Liposomes", <u>Cancer Research</u> , 43(2), (1983), 546-50	
		GABIZON, A., et al., "Enhancement of Adriamycin Delivery to Liver Metastatic Cells with Increased Tumoricidal Effect Using Liposomes as Drug Carriers", <u>Cancer Research</u> , 43(10), (1983), 4730-4735	
		GABIZON, A., et al., "Liposomes as <i>in Vivo</i> Carriers of Adriamycin: Reduced Cardiac Uptake and Preserved Antitumor Activity in Mice", <u>Cancer Research</u> , 42(11), (1982), 4734-4739	
		GANAPATHI, R , et al., "Effect of Cholesterol Content of Liposomes on the Encapsulation, Efflux and Toxicity of Adriamycin", <u>Biochemical Pharmacology</u> , 33(4), (1984), 698-700	

EXAMINER**DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional) ² Applicant is to place a check mark here if English language Translation is attached

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

Application Number 10/723,610**Filing Date** November 26, 2003**First Named Inventor** Hu, Ning**Group Art Unit** 1615**Examiner Name** Unknown

Sheet 3 of 3

Attorney Docket No: 1992.006US1**OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		GREGORIADIS, G., "Targeting of Drugs: Implications in Medicine", <u>The Lancet</u> , 2, (1981), 241-246	
		LIM, H. J., et al., "Influence of Drug Release Characteristics on the Therapeutic Activity of Liposomal Mitoxantrone", <u>The Journal of Pharmacology and Experimental Therapeutics</u> , 281(1), (1997), 566-573	
		LOPEZ-BERESTEIN, G., et al., "Liposomal Amphotericin B for the Treatment of Systemic Fungal Infections in Patients with Cancer: A Preliminary Study", <u>The Journal of Infectious Diseases</u> , 151(4), (1985), 704-710	
		MINOW, ROBERT A., et al., "Adriamycin (NSC-123127) Cardiomyopathy - An Overview with Determination of Risk Factors", <u>Cancer Chemotherapy Reports, Part 3</u> , 6(2), (1975), 195-201	
		OLSON, F., et al., "Characterization, Toxicity and Therapeutic Efficacy of Adriamycin Encapsulated in Liposomes", <u>Eur J Cancer Clin Oncol.</u> , 18(2), (1982), 167-76	
		PAPAHADJOPOULOS, D., et al., "Phospholipid Model Membranes. I. Structural Characteristics of Hydrated Liquid Crystals", <u>Biochimica et Biophysica Acta</u> , 135(4), (1967), 624-638	
		PAPAHADJOPOULOS, D., et al., "Phospholipid Model Membranes. II. Permeability Properties of Hydrated Liquid Crystals", <u>Biochimica et Biophysica Acta</u> , 135 (1967), 639-652	
		RAHMAN, A., et al., "Doxorubicin-induced Chronic Cardiotoxicity and its Protection by Liposomal Administration", <u>Cancer Research</u> , 42(5), (1982), 1817-1825	
		RAHMAN, A., et al., "Liposomal Protection of Adriamycin-induced Cardiotoxicity in Mice", <u>Cancer Research</u> , 40(5), (1980), 1532-1537	
		RAHMAN, A., et al., "Pharmacological, Toxicological, and Therapeutic Evaluation in Mice of Doxorubicin Entrapped in Cardiolipin Liposomes", <u>Cancer Research</u> , 45(2), (1985), 796-803	
		RICHARDSON, V., et al., "Tissue Distribution and Tumour Localization of 99m-Techneium-Labelled Liposomes in Cancer Patients", <u>Br J Cancer</u> , 40(1), (1979), 35-43	
		ROSA, P., et al., "Absorption and Tissue Distribution of Doxorubicin Entrapped in Liposomes Following Intravenous or Intraperitoneal Administration", <u>Pharmacology</u> , 26(4), (1983), 221-9	
		ROSA, P., et al., "Liposomes Containing Doxorubicin: An Example of Drug Targeting", In: <u>Transport in Biomembranes - Model Systems and Reconstitution</u> , Antolini, R., et al., editors, Raven Press, New York, 243-256	
		SZOKA JR, F., et al., "Comparative Properties and Methods of Preparation of Lipid Vesicles (Liposomes)", <u>Annu Rev Biophys Bioeng.</u> , 9, (1980), 467-508	

EXAMINER**DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached